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**A61F 11/14**

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(56) Documents Cited

**EP 0338463 A WO 94/24185 A**

(58) Field of Search

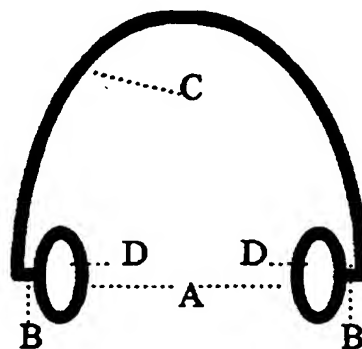
**UK CL (Edition O) A3V V13A**  
**INT CL<sup>6</sup> A61F 11/14**

(54) Abstract Title

**Rigid polyurethane ear-muff's cup**

(57) The Rigid polyurethane foam cup, for Ear Muff's cup A which is made with typical insert B by which it can be fitted to Ear Muff head band C, so that universal movement is obtained to fit the cup with insert securely to get optimum sound attenuation. The cup A can be made with insert B either on top or at the side in order to have the universal movement of cup and solid one piece construction. The cups are of cellular structure having large surface area but very light in weight which results in optimum sound barrier as well as comfort due to light weight/low overall pressure.

**FIGURE 1**



**TOP MOUNTING.**

**GB 2 320 885 A**

FIGURE 1

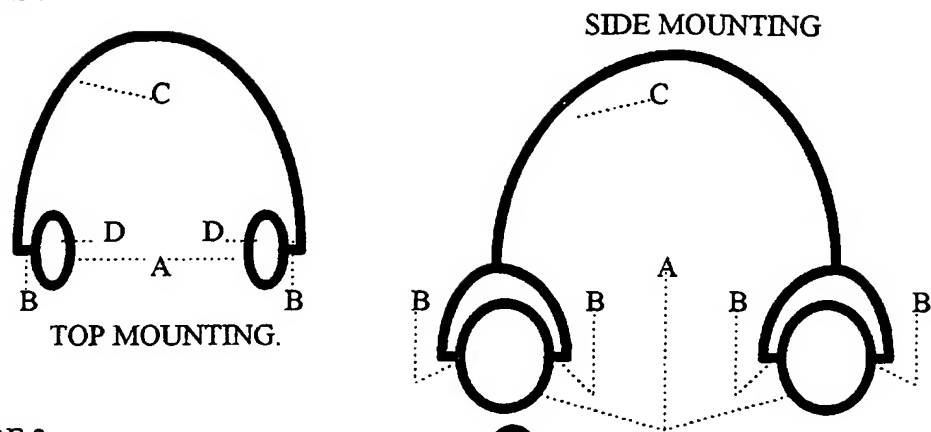


FIGURE 2

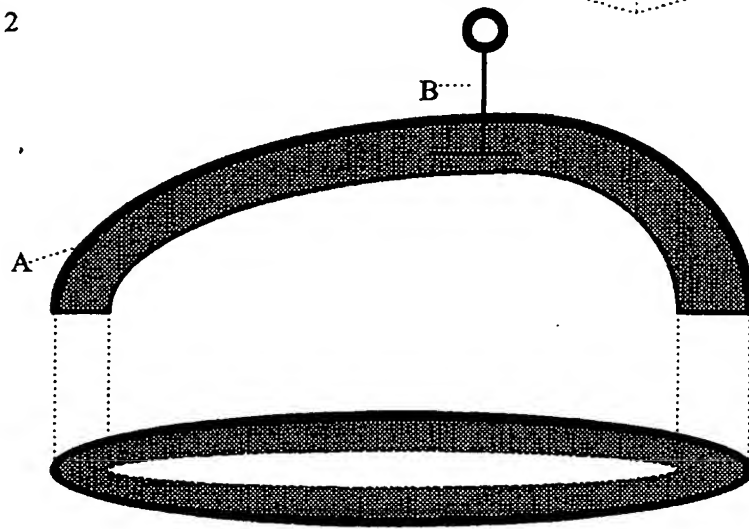
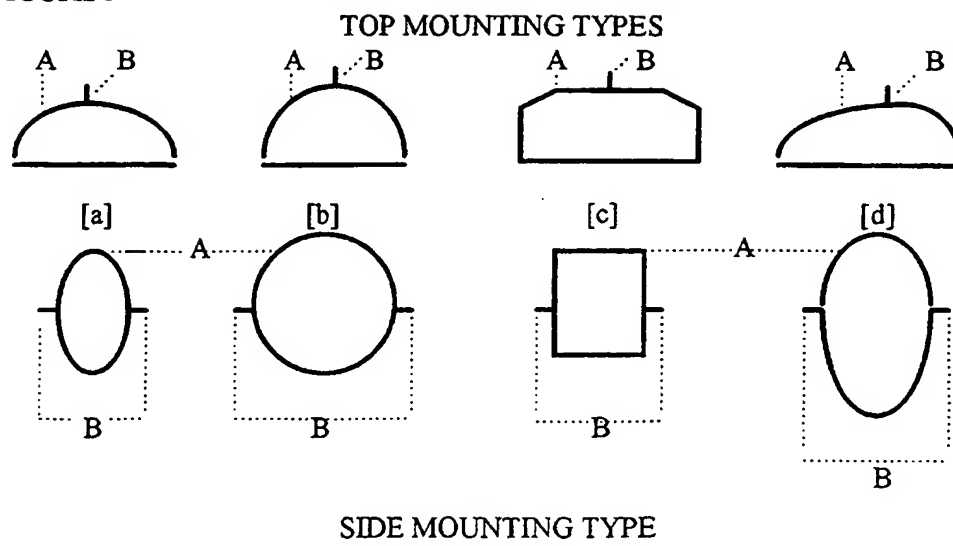


FIGURE 3



***RIGID POLYURETHANE FOAM EAR-MUFF'S CUP***

TECHNICAL FIELD	This invention relates to the idea of using rigid polyurethane foam to make Ear-Muff's Cups.
BACKGROUND	Ear-Muff's Cups are generally made of plastics. The Ear Muff consists of a Head-Band, to which, at both ends, a cup is attached. Over the cups, two soft cushion pads are provided for adequate fitting purpose. It also provides ear protection in noise polluted areas, at the same time making it possible to communicate when equipped with a radio microphone.
ESSENTIAL TECHNICAL FEATURES	According to the present invention, the <b>IDEA IS TO USE RIGID POLYURETHANE FOAM</b> material to make various sizes & shapes of Ear Muff Cup. Unlike plastics,[ ABS , HDPE , PP , ETC ] we can achieve better sound attenuation & as this material is light in weight, the product becomes light weight resulting in overall low pressure which gives optimum protection and comfort to the users of the product.
EXAMPLE	<p>Specific parts of the invention will now be described by way of example with reference to the accompanying drawing in which:---</p> <p><b>Figure 1</b> shows in perspective, the complete Ear Muff with top &amp; side mounting and various typical insert attachments.</p> <p><b>Figure 2</b> shows the Ear Muff's cup complete [for which the use of RIGID POLYURETHANE FOAM material example is explained.]</p> <p><b>Figures 3 [a] [b] [c] [d]</b> show that there can be various shapes &amp; sizes of CUP as per requirement e.g. for noise affected work areas or for two way communication purpose etc.</p>

Referring to the drawing, the Ear Muff is made of a head band **C** to which at both ends the cup **A** is typically attached by insert **B**, and on the cup soft cushioned pads **D** are mounted. This is a complete Ear Muff as shown in **figure 1** , The Ear Muff can be of either top mounting type or side mounting type .

**Figure 2** shows the Ear Muff's Cup **A** in enlarged form. The cellular foam structure & typical insert **B**.

**Figure 3** shows different sizes & shapes of Ear Muff's Cup used commonly , illustrates wide drawings **[a] [b] [c] [d]** .They can be attached with a head band by typical insert either on top or at the two sides as per their respective requirement with top mounted type or side mounted type of Ear Muff .

### **CLAIMS**

- 1     The Rigid polyurethane foam material to make Ear Muff's cup. The Idea of using this material in Ear Muff's cup. Ear Muff comprises of head band, cup with typical insert by which they are connected to head band & ear pad [Soft cushioned ear pads ] mounted on cup .
- 2     The Rigid polyurethane foam cup claimed in Claim 1 wherein cup means various sizes & shapes of cup with typical insert as required in Ear protector in noise polluted area or Ear Muff for communication in work area or remote areas.
- 3     The Rigid polyurethane foam cup claimed in Claim 1 or Claim 2 , wherein the various typical inserts means a suitable type stud used as insert in cup , making the cup to be fitted with head band & to wearer in universal position.
- 4     The Rigid polyurethane foam cup claimed in Claim 2 or Claim 3 , wherein the inserts provided either at the top or at the side for top mounting type or for the side mounting type respectively.
- 5     The Rigid polyurethane foam cup substantially as described here in with reference to figure 1 2 3 [a] [b] [c] [d] of accompanying drawings.



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Claims searched: 1-5

Examiner: D. Haworth  
Date of search: 5 March 1997

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK Cl (Ed.O): A3V (V13A)  
Int Cl (Ed.6): A61F 11/14  
Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	WO 94/24185 A (Cabot) - see claim 7	1-5
X	EP 0338463 A (Gentex) - see claim 23	1-5

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.